

PHYSICAL BEHAVIOR OF TWO CARBONATIC ROCKS IN AQUEOUS CONTACT. A LABORATORY SIMULATION.

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Two carbonatic rock types (calcitic limestone and dolomite) from the Paranoá Group in Minas Gerais State, Brazil, showed modification in some physical characteristics, after being submitted to alterability test by leaching cycles in two Soxhlet apparatus. One of them runned with deionized water only (neutral pH). The water in the other was acidified by carbonic gas, giving a pH between 3.5 and 4.0. Grain size analyses, Los Angeles abrasion, bulk density, porosity and water absorption tests were performed before and after sixty leaching cycles. The chemical stability under these conditions was evaluated trough Ca, Mg and Fe contents determination. Despite a negligible variation in physical and mechanical properties and grain size distribution, the bulk density and water absorption showed some variations, as follows: a) the limestone sample submitted to the acid water, showed an expressive reduction in the water absorption, about 2.5 times, and slight increasing in the bulk density; b) the dolomite sample, instead, showed increasing water absorption and a slight specific gravity decrease, in the same experimental condition. The determined chemical data showed leaching of calcium of the calcite mineral from both calcitic limestone and dolomite at the deionized water environment, without affecting the dolomite mineral, as expected. In the acidified water environment, it also occurred the leaching of magnesium from the dolomite mineral, besides the medium acid level established in the experiment.